Project Number:_____

Project Type:_____

Project Description:_____

DESIGN REVIEW LIST FOR FINAL CONSTRUCTION PLANS

I certify that all applicable items on this review list are shown on the final construction plans correctly. All items have been addressed and meet or exceed minimums required by the City of Lincoln design standards, City of Lincoln standard specifications for municipal construction, and Lincoln Standard Plans (LSP). Items on this review list that do not meet the minimum requirements are as noted on the review list and have the necessary notes of explanation attached.

Checklist Prepared By:_____(signature)

Project Designer (Engineer-in-charge):_____

Engineering Firm:_____

Address:_____

City, State Zip:_____

Telephone:_____

Email:_____

Note: The following checklist is not intended to cover all of the details, notes, and information that may be necessary for final construction plans. The checklist below addresses the items where most questions or problems generally arise. Specific issues, concerns, and conditions may require exercise of engineering judgement. Notes of explanation are required in such cases.

FINAL PLAN SUBMISSION CHECKLIST TO BE COMPLETED PRIOR TO "PLANS TURNED-IN" TO CITY FOR THEIR REVIEW.

✓ Place a **"CHECKMARK"** by applicable items on this list that have been completed, reviewed and checked. These items meet or exceed minimum requirements by the appropriate authority..

N/A Place **"N/A"** by non-applicable items on this revuiew list and are not required nor a part of the project.

✳ Place a **"STAR"** by items on this review list that are not complete or do not meet the minimum requirements. Necessary notes of explanation are attached.

Project Number:_____

Project Type:_____

Project Description:_____

GENERAL:

_____ Location of Project is Complete and Accurate.

_____ Group Items, by Discipline in Letting List.

_____ Project Concept. The Proposed Improvements and Project Limits are Consistent with the Scope and Type of Work.

_____ Design Data is Shown on Design Memo. Design Exceptions Must be Requested and Approved. Non-standard Construction Items are to be Noted in the Design Memo and Addressed in Special Provisions and Bid Items.

_____ Correct Lincoln Standard Plans (LSP) Reviewed and Referenced.

_____ Correct Standard Specifications Reviewed and Referenced.

_____ Special Provisions (if applicable) Reviewed and Included.

_____ Review Completeness of Plan Notes and Details.

_____ Check for Consistency Between Notes, References, and Final Computation.

_____ Geotechnical Report Reviewed to Assure Conformity with Plans.

_____ Special Provisions Written for all Pay Items and Contract Implementation Items Not Covered by the City of Lincoln Standard Specifications for Municipal Construction, Project Provisions (general conditions) or Standard Special Provisions..

_____ Verify Plans Include Known Environmental Commitments.

_____ Coordinate Final Plans with **"Project Review Checklist"**.

_____ Coordinate Final Plans with **"Project Permit Checklist"**.

_____ All Necessary General and/or Standard Notes Placed on Plan Set.

_____ Right-of-Way, Temporary and Permanent Easements Acquired.

_____ Plans are conforming to the CADD Standards Sample Plans

SURVEY:

_____ Project Data for Horizontal and Vertical Alignment of All Proposed Construction, Service Roads, Profiles, etc...Have Been Checked to See if the Data is Correct and Not Effected by Rounding Errors.

_____ Control Points for Horizontal Curves and Vertical Curves Shown.

_____ Equalities (E.Q. stations) Shown on Survey Line Used for Length of Project (check with equalities shown on plan sheets).

_____ Datum Descriptions.

_____ Benchmarks are Listed (minimum of two required).

_____ Sufficient Dimensions and Tie Points for Field Location and Construction.

ITEMS FOR ROADWAY, STORM WATER, WASTE WATER, AND / OR WATER PROJECTS:

Project Number:_____

Project Type:_____

Project Description:_____

_____ All Conflicting Utilities Have Been Dealt with and Resolution Documented.
_____ Other Projects in the Same Area Have Been Noted.
_____ Landscaping Items are Included.
_____ Erosion Control Items are Included.
_____ Signing and Signalization Items are Included.
_____ Lighting Items are Included.
_____ Earthwork Computations Complete and Accurate.
_____ Retaining Walls.
_____ Fence and Type.
_____ Contour Grading Detail Shown, if Applicable
_____ Subsurface Plans with Grade Line and Earthwork Checked Against Final Plans.
_____ Estimates:
- _____ Estimate Made for Each City Project Number, State Project Number, Federal Project Number, and Other Parts as Necessary.
- _____ Final Computer Estimate Checked Against the Quantity Calculations.
- _____ Description Number, Section number, Item Description and Engineering Cost Estimate Checked Against Pay Item List.
- _____ Cost-Based Estimate Quantity Breakdown Summary Sheet Completed.

ROADWAY:

_____ Roadway Width Appropriate for Type of Roadway and Project Requirements.
_____ Horizontal Curve Data:
- _____ Stations for P.C. and P.T.
- _____ Number/Label for P.I.
- _____ Radius/Degree of Curvature
- _____ Curve Length
- _____ Tangent Length
- _____ Super Elevation
- _____ Runoff Length
- _____ Vertical Curve Data
- _____ Stations for V.P.C., V.P.I, AND V.P.T.
- _____ Elevation for V.P.C., V.P.I, AND V.P.T.
- _____ Length of Curve.
- _____ 'K' Value
- _____ Stopping Sight Distance Along Mainline Roadway.
- _____ High Point/Low Point Location.

_____ Intersection and Driveway Sight Distance Including Notes.
_____ Pavement Cross Slope
_____ Street Slope
_____ Pavement Thickness Corresponds with Appropriate Requirements

_____ **Intersections and Driveways**
(For more information and guidance see Chapter 4.00 "Driveway Design Standards" in

Project Number:_____

Project Type:_____

Project Description:_____

the City of Lincoln Design Standards.)

_____ Traffic Data, Traffic Projections and Vehicle Turn Movements (including u-turns) Have Been Addressed.
_____ Angle of Intersection.
_____ Alignment of Lanes.
_____ Sight Distance.
_____ Appropriate Curve Radius (including commercial truck turns and bus turns when required).
_____ Islands with Details Including Alignment.
_____ Information for Constructing Three Centered Curves.
_____ Length of Turn Lanes.
_____ Proposed Entrances and Exits Align with Other Entrances and Exits..
_____ Proposed Entrances and Exits Located to Provide Maximum Separation From Other Drive Approaches and Intersections..
_____ Left-Turn Lanes are Offset for Sight Distance (or as a minimum line up).
_____ Maximum Slope of Entering Lane is Equal To or Less Than 3.0%
_____ Markings
_____ Pedestrian Ramps

_____ **Cross-Sections**

_____ Cross Check to Verify Adequate Sight Distances at Bridges, Intersections and Entrances.
_____ Driveway Slopes are Not Excessive (8% maximum is desirable).
_____ Tie-In Locations Meet Existing Ground.
_____ Sidewalk Sloped Towards Roadway
_____ Right-of-Way, Permanent, and Temporary Easements Shown.
_____ Drainage, Limits of Grading.

_____ **Traffic Controls and Temporary Detours**

_____ Roadway Traffic Handling Considerations.
_____ Minimum MUTCD Requirements and City of Lincoln Traffic Control Guidelines for Street Construction, Maintenance and Utility Operations Have Been Reviewed. Requirements Necessary Above and Beyond the Minimum Requirements are Listed and Noted in the Special Provisions.
_____ Maintenance of Access Points During Construction.
_____ Phasing of Construction
_____ All Traffic Handling Requirements are Listed and Noted in the Special Provisions.

_____ Structures Checked for Vertical and Horizontal Clearances to Assure That Tie Points and Centerline Grades are Correct.

Project Number:_____

Project Type:_____

Project Description:_____

_____ **Cul-de-Sac and/or Dead Ends**
- _____ Conformity to Design Standards and LSP 662.
- _____ Proper Barricades and Markers (reference LSP 164)
- _____ Turn Around Provisions (reference LSP 620)

_____ **Pavement Markings**
- _____ Conformity to Design Standards and LSP 79
- _____ Turn pockets proper length (150' minimum)
- _____ Tapers correct length? (As per AASHTO green book standards)
- _____ Parking issues that affect markings have been addressed
- _____ Crosswalks issues addressed
- _____ Existing markings on ends of projects are consistent
- _____ Stop bars needed for bus/truck turning movement
- _____ Pavement marking gores correct
- _____ All lane widths shown on each street
- _____ All cross-streets identified
- _____ Left-Turn lanes offset for sight distance
- _____ All cross-streets identified

_____ Check to See Design Appropriate for ADT.
_____ Driveway Locations and Intersection Locations Met Standards.
_____ Is Control of Access Needed.
_____ Sidewalks
- _____ Cross Slopes
- _____ Locations
- _____ Connections
- _____ Width

STORM WATER DRAINAGE:

_____ Hydraulic Data (not on plans, but should be checked)
- _____ Drainage Area
- _____ Frequency (2 yr, 5 yr, 10 yr, 25 yr, 50 yr, or 100 yr)
- _____ Discharge
- _____ Coefficient

_____ Drainage Study (not on plans, but should be checked)
- _____ Accurate Calculations Should Be Provided.
- _____ Pipe Computations (Minimum size =
- _____ Hydraulic Grade Line Profile
- _____ Street Carrying Capacity Computations
- _____ Overland Flow Computations

Project Number:_____

Project Type:_____

Project Description:_____

- _____ Outlet Computations
- _____ Flood Elevations, FEMA Map
- _____ Storm Water Drainage System Pipe Sizes and Slope as Required by Subdivision Study.
- _____ Storm Water Drainage System Provides Required Capacity.
- _____ Inlets and Inlet Study
  - _____ Inlet Computations.
  - _____ Inlet Study Conforms to Proper Design Standards.
  - _____ Straight or Canted as Shown on Inlet Study
  - _____ Number and Location of Inlets are Appropriate (double check drainage patterns and flow path on any horizontal curves).
  - _____ Placement of Inlets, Check Both Horizontally and Vertically (will collect drainage, not on high side of curves, located in sump areas).
  - _____ Top of Curb Elevation.
  - _____ Flow Line of Inlet (minimum of 20" cover + pipe diameter + pipe wall thickness to top of curb)
  - _____ Dimension and Stationing for Inlet Shown Correctly
- _____ Manholes
  - _____ Location (should be on centerline of street at intersections of storm drainage, significant change in slope or direction.)
  - _____ Spacing (600 ft. maximum)
  - _____ Rim Elevation
  - _____ Flow Line (F.L.)
  - _____ Type
- _____ Storm Water Drainage Profiles.
  - _____ Minimum Slopes and Maximum Velocity Requirements.
  - _____ Minimum Cover Requirements.
  - _____ Minimum Separation Between Storm Drainage Line and Other Utilities.
  - _____ Flow Line at the Following Locations:
    - _____ Manholes
    - _____ Control points of Horizontal Curves
    - _____ Beginning and End of Project
    - _____ Inlets and Outlets From or To Open Channels
    - _____ Inlets and Outlets of Culverts
- _____ Erosion Control and Rip-Rap
- _____ Special Ditches
- _____ Special Drainage Structure or Headwalls.
- _____ Grates on Flared End Section (F.E.S.), on Inlet Side Only.
- _____ Easements Acquired or Recorded. Including Future Locations.
  - _____ Easements Must be Shown Around Sump Inlets Ponding on Private Property. Furthermore, Sump Inlet Ponding Calculations Must be Provided.
  - _____ Easements Must be Provided Around Open Drainageways. Furthermore, Computations Supporting the Drainageway Design Must be Provided.

Project Number:_____

Project Type:_____

Project Description:_____

SANITARY SEWER:

_____ Sanitary Sewer Sized Appropriately (minimum size = 8")
_____ Accurate Calculations (not on plans, but should be checked)
_____ Manholes
- _____ Location
  - _____ At Lot Lines Except at Intersections of Sanitary Sewers.
  - _____ Change of Grade
  - _____ Change of Direction
- _____ Spacing (600 ft. maximum)
- _____ Rim Elevation
- _____ Flow Line (F.L.) **Need Elevation Difference Between Inlet and Outlet to Help Slope Drainage.**
- _____ Drop Manholes (invert elevation difference greater than 2.5 foot difference).

_____ Services Shown to Each Platted Lot (table of information)
- _____ Location of Wye on Sanitary Sewer
- _____ Flow Line of Main Sewer at Wye
- _____ Flow Line of Service at Wye (1ft. above flow line of main sewer).
- _____ Flow Line of Service at Lot Line.
- _____ Length of Service.
- _____ Location of Service at Lot Line (dimension from lot line if not centered in lot).

_____ Note (if applicable): Use 3 Degree Couplings on All Radii Where R<360 ft. Minimum Pipe Length = 6'-3".

_____ Sanitary Sewer Profiles
- _____ Minimum Slopes and Maximum Velocity Requirements Checked.
- _____ Minimum Cover Requirements; (maximum depth = 15 feet)
- _____ Minimum Separation Between Sewer Line and Other Utilities.
- _____ Flow Line at the Following Locations.
  - _____ Manholes
  - _____ Control Points
  - _____ Beginning and End of Project

WATER:

_____ Valve Location and Spacing Meet Water Department Guidelines and Design Standards.
_____ Hydrant Locations and Spacing (maximum 420 feet)
- _____ Have Been Reviewed with Water Department
- _____ Have Been Reviewed with Fire Department
- _____ Multi-lane Roadway (put both sides)
- _____ Check Curb Line Elevation and Hydrant Length (5.5 feet or 6.5 feet from flange to elbow).

_____Proposed Top-of-Curb Grade at Hydrants
_____ Waterline Profile.

Project Number:_____

Project Type:_____

Project Description:_____

_____ Maximum Change in Grade Without Bend Checked
_____ Minimum Cover Requirements (5 feet)
_____ Minimum Separation Betwen Water Line and Other Utilities
_____ Flow Line at the Following Locations:
    _____ Break in Grade
    _____ Tees and Crosses
    _____ Beginning and End of Project